



## ACOUSTICALLY ACTIVATED MARKETING DEVICE

[0001] This application claims the priority of British patent documents 9907626.7, filed April 6, 1999 and 9828101.7, filed December 21, 1998 (PCT No.: PCT/GB99/04354), the disclosures of which are expressly incorporated by reference herein.

[0002] The present invention relates to an acoustically activated marketing device.

[0003] The consumer obtains the device from a retailer, and wears the device as a badge while at the cinema or while listening to the radio or TV. When a specific advert is broadcast the badge interprets part of the sound track and activates the display on the badge.

[0004] According to the present invention the apparatus for displaying information includes a display means and an activation means. The activation means is coupled to the display means such that upon reception of predefined data, the activation means causes the display means to display predefined information. The predefined data may be transmitted by an acoustic signal, which may be digitally modulated.

[0005] According to a further aspect of the present invention said predefined data is broadcast by a commercial broadcasting means, which may be a television broadcasting a radio broadcasting means.

[0006] According to yet a further aspect of the present invention, the apparatus further includes programming means for programming the predetermined data and

the predefined information. The display means may be a liquid crystal display, and the activation means may be an application specific integrated circuit.

[0007] The apparatus further includes a microphone means, an analogue to digital interface means, a programmable digital processor and a battery, which may be a button cell type battery.

[0008] According to an aspect of the present invention, the predefined information may be an advertisement, or a message.

[0009] According to a further aspect of the present invention, there is provided a method for displaying information, including the steps of: receiving data, comparing the received data with predefined data, and when the received data matches the predefined data, displaying predefined information.

[0010] According to a further aspect of the present invention the data may be transmitted by an acoustic signal, which may be digitally modulated.

[0011] According to yet a further method aspect, the acoustic signal is part of a commercial television or radio broadcast.

#### BRIEF DESCRIPTION OF THE DRAWINGS

*Sub C1* [0012] While the principle advantages and features of the invention have been described above, a greater understanding and appreciation of the invention may be obtained by referring to the drawings and detailed description of the preferred embodiment, presented by way of example only, in which;

[0013] Figure 1 shows the display means of an acoustically activated marketing device according to one aspect of the present invention; and

[0014] Figure 2 shows the electronic layout of an acoustically activated marketing device according to one aspect of the present invention.

## DETAILED DESCRIPTION OF THE DRAWINGS

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C3 [0015] In Figure 1 an acoustically activated marketing device (10) is shown comprising a low-cost display (12). The display (12) may be a liquid crystal display. The device (10) operates such that upon reception of predefined data, the display (12) displays predefined information. This information may be an advertisement such as a cocktail glass (14) or a message indicating that a prize has been won.

[0016] The device can be configured such that different data triggers different messages. For example, data X may trigger a message that indicates a prize has been won, while data Y may trigger a message that indicates that no prize has been won.

[0017] Alternatively, different badges can be configured to respond differently to the same data. For example, upon reception of the same data, one badge may indicate that a prize had been won, while another badge may not.

[0018] In Figure 2 the electronics layout (20) of an acoustically activated marketing device (10) is shown. In this aspect of the present invention the electronics layout includes a microphone element (22) connected to an A/D interface (24). The microphone elements operate to detect a predefined acoustic signal. The device (10) further includes a programmable digital processor (26) which allows for a variety of acoustic signals and corresponding display information to be programmed into the device. Thus a single device can be mass-produced and then programmed in the factory to satisfy a variety of different customer's needs.

[0019] The device (10) further comprises a battery source (28). In this embodiment of the present invention the battery source is a button type battery.

[0020] As will be appreciated, when the predefined information is displayed the consumer may be in an area of high noise, for example; in the midst of conversation in a cinema or at home, or when driving in a car. This noise may mask the predefined data and prevent the display means from being activated. Ideally, this should not be greater than 1 non-activation out of 10 or 20 occasions.

[0021] As will be appreciated, while the consumer is wearing the badge, it will be subject to many different sources of noise, for example; conversation, music and car noise. These could, by chance, contain a sequence of sounds that are sufficiently like the predefined signal to trigger the device. The probability of this type of 'false alarm' occurring can be reduced by increasing the complexity of the predefined data, but this may be at the expense of battery life or badge cost. Ideally, less than 1 in 100 badges should be unintentionally activated during their lifetimes.

[0022] The required operating lifetime of the badge is expected to be application-dependent. Long operating lifetimes will require higher cost batteries or lower power circuits.

[0023] To minimise the production cost, an application specific integrated circuit (ASIC) can be developed. To reduce packaging costs the ASIC can be directly mounted on the printed circuit board and then protected from the atmosphere by a layer of plastic. For this type of ASIC to be viable, large production runs will be necessary. The requirement for such runs will make it more difficult to adapt the ASIC to a different application. Some degree of programmability may be possible, however this may require the use of a more expensive production process.

[0024] The foregoing disclosure has been set forth merely to illustrate the invention and is not intended to be limiting. Since modifications of the disclosed

embodiments incorporating the spirit and substance of the invention may occur to persons skilled in the art, the invention should be construed to include everything within the scope of the appended claims and equivalents thereof.